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Pluto-Kuiper Express: To Our Last Planet and Beyond

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Preparations are underway for the first spacecraft mission to Pluto and Charon, and perhaps to one or more Kuiper Disk Objects beyond. Now slated for launch in 2004 December, Pluto-Kuiper Express is among a trio of missions being prepared as part of the Outer Planets/Solar Probe Project. The Pluto mission is to be preceded 13 months earlier by Europa Orbiter. While the destinations and science instruments are to be very different, the Pluto spacecraft is to be a near-copy of much of the Europa spacecraft, sharing common avionics, telecommunications equipment, software, structure, operations team and launch system. This commonality, along with elements which may also be shared with Solar Probe in 2007, enables costs much lower than if the missions were prepared separately.

Science objectives are largely as articulated since 1992 by NASA's Outer Planets Science Working Group and Pluto Science Definition Team, encompassing surface geology and composition, and atmospheric characterization. The single-spacecraft flyby will allow kilometer-class mapping of the lit hemisphere, and lower resolution characterization of other regions not in seasonal shadow. The trajectory can permit observation of solar and Earth (radio) occultations by Pluto's atmosphere.

Nothing is being done in the design or preparation of the mission to preclude observations during an extended mission farther into the Kuiper Disk. At the same time, to avoid added cost, requirements for encounter with a Kuiper Disk Object are not being permitted to drive the design.

Trip time to Pluto is planned for eight years. Science investigation proposals are being solicited by NASA, the mission's sponsor.